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de terre se placer au premier rang des richesses agricoles.

François de Neuchâteau proposa de substituer au nom impropre de cette solanée celui de Parmentière. Mais la modestie de Parmentier s'y refusa.

Louis XVI lui avait dit "La France vous sera bien reconnaissante, car vous avez donné à manger à ses pauvres enfants."

En vérité, la France lui sait bien gré, car si vous visitez le beau Cimetière de Père La Chaise vous trouverez un tombeau tout couvert de belles fleurs jaunes, les fleurs de la pomme de terre. Vous y trouverez aussi le nom de Parmentier.

Toutes les années les français reconnaissants viennent planter le tubercule sur la tombe de leur bienfaiteur.

## Construction Work in Library Economy

Irene Warren

Frances Simpson

The construction work in library economy would naturally divide itself into four parts—the printing, illustrating, binding, and bibliography.

The student who makes a book, and knows why the guides, such as the table of contents, marginal notes, and indexes are put in books, will no longer laboriously turn over the pages of a book for a given reference, but at once seek the most economical means the book affords for finding such a reference.

It is possible to begin this work very early by having the children make scrap-books, and later to bind their essays, drawings, paintings, and pamphlets, and make any necessary note-books. The course may be made more attractive by telling the children stories showing the development of book-making from the old stone and clay tablets to the beautiful books of today. There are many fascinating stories of the untiring devotion of the monks in illuminating the gospels, one of which Thomas Bailey Aldrich has told in his poem, *Friar Jerome's Beautiful Book*. The story of the invention of printing is always interesting, and also the story of the labors of Aldus Manutius. Portions of Dr. Gun-saulus' *Monk and Knight* give the idea of the devotion and sacrifice of these early

workers, whose results no one has ever excelled. If possible, examples of the beautiful old illuminated manuscripts, great wooden-bound volumes, and later the dainty pocket editions with their rare bindings and wonderful black print, should be shown the students. Some of these early works of art tell of a devotion, love, and heroism that history does not often repeat.

This outline should deal with the printing and illustrating, but space will not permit, and therefore only the bibliopæic and bibliographical phases are outlined.

It seems best to have the children do that style of binding in which they can produce as good a piece of workmanship as possible. This means the simple binding for the primary grades, with an attempt toward more complex forms in the upper grades. All possible freedom should be allowed the child in choice of color, material, and style. The simplest binding is folding the leaves and lacing them into a cover like a Japanese book. This will also be found practical for any papers which are in single sheets or where other sheets are to be inserted from time to time. If the paper is thin, a narrow strip of firmer material should be pasted along the back to prevent the paper from tearing out.

Covers may be of plain paper, decorated by the children or bearing only a paper label with title and author, well lettered. In the upper grades a cover can be made of muslin or leather on a light weight mill board, lacing sheets into cover. The hinge is made by cutting the board in two where the joint is wanted.

In every book, care should be taken to have the child design a title-page and examine books to see what a title-page should contain. He should also dedicate his book, make a table of contents, list of illustrations, introduction, chapter headings, index, marginal and foot notes if necessary. In this way he will learn to use these valuable features of a book which the average student never notices.

The purpose of binding is to preserve, and it would be well to try to have the material to be bound well worth the binding. The children may bind a printed pamphlet or their own essays and drawings. If a printed pamphlet is used, it will of course already be folded, but if the essays of the children, it should be on paper previously folded according to the following directions.

**DIRECTIONS FOR FOLDING:** Lay paper on table, take a bone folding-stick in left hand, fold top edge evenly on to bottom, and crease, then left edge over to right edge, and crease. This makes two folds, four leaves, and eight pages.

**COLLATING:** See that every page is in its right place, the maps mounted on thin muslin, and all plates carefully pasted in. Then put in a heavy press over night.

**SAWING AND SEWING:** Take the book and knock it straight at both head and back, then place it between thin boards, the back projecting one-eighth of an inch. Put in a vise and screw in tightly. For an ordinary octavo divide the back into six equal parts, leaving the bottom part one-eighth of an inch longer, or, for a strange optical reason, it will look shorter. Take a saw and saw in just deep

enough to imbed the bands on which the book is to be sewed. The first and last saw-cuts are for the kettle stitch and should not be quite so deep as the others. The book is now ready to be sewed. The sewing can be done without a frame, but much better work is possible with one. A sewing-frame consists of a bed with a slot in the front of it, two screws and a cross-bar, round which are fastened the cords on which the book is sewed. The other ends of the cords are fastened to nails by slip-knots on the underside of the slot in the bed; and the beam is screwed up quite tightly. The cords will then fit in the saw-cuts. The book is sewed one section at a time by running the blunt binder's-needle through the saw-cuts, around each band, and fastening it at the end to the former section by means of the kettle stitch. After the book is sewed, cut the cords so as to leave about two inches of cord on either side. Fray out the cords carefully.

**FORWARDING:** The volume is then ready for end-leaves, which are made by pasting the colored paper on to a rather heavy white paper. There is a large variety of papers for this purpose, known as Cobb, surface, marbled papers and other various fancy papers. The children may design their own end-leaves. The white fly-leaves and made end-leaves are then pasted on the book. If the volumes are at all heavy, joints should be made of binder's cloth or morocco to match the cover. The book is then ready to be trimmed.

Knives are very expensive things, and it may be necessary either to leave the edges in the rough or to take them to a shop to be trimmed. The book is glued thoroughly across the back and allowed to dry. It is next carefully rounded by putting in a vise and pounding into shape with a binder's hammer. The book is then ready for the boards. It is impossible to make any kind of a book unless good mill boards are used. The boards should project enough beyond the pages in front and back to be a protection. Two holes are then punched by an awl one-half inch from the back of the boards opposite each band. The ends of the bands are made into needles by applying paste and twisting, and are then laced into the boards. The lacings are next pounded flat and cut off. Head-bands can be bought ready for use or made by twisting colored silks round a piece of vellum or button-hole stitching silk over the edge of a tape. The head-band is glued to the top of the back. The back is then covered

with several thicknesses of brown paper and is ready for the cover, which may be of paper, cloth, or leather.

**FINISHING:** The putting on of gold letters and designs is a very difficult process, and could only be done by the oldest pupils. It is, however, possible for the children to do considerable decorating and lettering in other ways. Generally it is possible to make satisfactory arrangements with job binders to furnish the necessary supplies for such binding as is done in the schools. They are usually willing, also, to do the necessary cutting of material.

**MACHINERY AND SUPPLIES:** The following is a small outfit for a bindery. It is, however, possible to do very fair work in a school-room with less machinery. Prices vary considerably, and are, therefore, not given here, but they may be readily obtained of any firm dealing in binders' supplies:

1 pair of compasses. 1 square. 1 bone folder. 1 glue-pot and brushes. Paste-pot and 2 paste brushes. 2 cutting and paring knives. 1 pair of editor's shears. 1 awl for stabbing. 1 gas

stove. 1 forwarder's hammer. 1 edge scraper. 1 sewing bench, 24 inches between screws. 2 12-inch backing boards. 1 lettering pallet. 1 fillet roll. 1 finishing press. 1 gold cushion. 1 small standing press. 2 sets of brass types. 1 package of binders' needles, 1 blunt, and 1 sharp. 1 pound each of Hayes' Irish linen thread, Nos. 18, 25, and 30. 1 pound each of soft twine, Nos. 3 and 4. 1 bundle of tar boards and one of straw boards. 1 package of gold-leaf. Canvas, cloth, leather, and papers.

**References:** The following list of books will be found helpful in practical binding, and also for the history of book-making. Zaehnsdorf gives the best practical description of binding:

Aldrich, *Friar Jerome's Beautiful Book*, Houghton; Bouchot, *The Book; Its Printers, Illustrators and Binders*, Grevel; Gunsaulus, *Monk and Knight; Historical Study in Fiction*, McClurg; Horne, *Binding of Books*, Kegan Paul; Matthews, *Book-Bindings, Old and New*, Bell; Putnam, *Books and Their Makers in the Middle Ages*, 2 vols., Putnam; Zaehnsdorf, *Art of Book-Binding; a Practical Treatise*; Technological Handbooks, Bell.

## Number as Related to Meteorology in the Primary Grades

Flora J. Cooke

During the past month several letters from teachers have been received inquiring as to the value of keeping a daily record of the local weather conditions and amount of number work necessitated by such work in the primary grades.

Judging from the interest thus manifested and the number of symbolic and pictorial charts and calendars which have recently appeared in the kindergartens and schools of New York, Boston, Washington, Minneapolis and San Francisco, this is a subject of universal interest to primary teachers at present.

There seems to be but one general answer to the questions stated above: To be really valuable and educative this work

must directly feed the child's genuine joy and appreciation of nature's phenomena. He uses number only because it will help him to find out what he wants to know.

If, on the other hand, this subject is chosen merely because it affords an opportunity to drill the children in fractions or so-called fundamental processes of arithmetic, wooden blocks would be a much more direct means to the end desired and the child's attitude toward nature would be less apt to be strained and pretentious.

In last year's *Inland Educator* a somewhat detailed outline of this phase of our work was given, and because it answers most of the questions asked, part of the article is quoted below.